L Number	Hits	Search Text	DB	Time stamp
1	15	"rna polymerase" same (mutation or error) near3 induc$5	USPAT; US-PGPUB; DERWENT	2003/10/29 12:31
2	810	("rna polymerase" same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 12:41
3	2	(("rna polymerase" same (mutation or error)) and (evolution or evolve or selection)) and gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:47
4	1	"in vitro" near2 evolution and gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:37
5	132	"rna polymerase" and gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:37
6	33	("rna polymerase" and gold.in.) and replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 12:40
7	0	("rna polymerase" and gold.in.) and replicase same pool	USPAT; US-PGPUB; DERWENT	2003/10/29 12:40
8	0	(("rna polymerase" same (mutation or error)) and (evolution or evolve or selection)) and replicase same pool	USPAT; US-PGPUB; DERWENT	2003/10/29 12:40
9	168	(replicase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
10	77	((replicase same (mutation or error)) and (evolution or evolve or selection)) and target same (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 12:41
11	52	(((replicase same (mutation or error)) and (evolution or evolve or selection)) and target same (evolution or evolve or selection)) not gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:59
12	409	hiv near8 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 12:59
13	89	(hiv near8 selection) and target near8 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
14	9249	(polymerase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
15	102	(hiv near8 selection) and (polymerase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
16	34	((hiv near8 selection) and target near8 selection) and (polymerase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:01
17	32	(((hiv near8 selection) and target near8 selection) and (polymerase same (mutation or error)) and (evolution or evolve or selection)) and rna same (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:01

ACCESSION NUMBER: 1996:71325 BIOSIS
DOCUMENT NUMBER: PREV199698643460
TITLE: Why is the polymerase chain reaction resistant to in
                      vitro evolution?.
AUTHOR(S):   Bull, J. J. [Reprint author]; Pease, C. M.
CORPORATE SOURCE: Dep. Zool., Univ. Texas, Austin, TX 78712, USA
SOURCE: Journal of Molecular Evolution, (1995) Vol. 41, No. 6, pp.
                      1160-1164.
                      CODEN: JMEVAU. ISSN: 0022-2844.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 27 Feb 1996
                      Last Updated on STN: 27 Feb 1996

AB   A variety of methods have been developed to amplify DNA and RNA. These
      methods vary in their susceptibility to evolve new molecular species
      differing from the starting template. PCR is exceptionally resistant to
      in **vitro evolution**, whereas methods such as Q-beta
      replicase and 3SR are much less robust. This paper develops some
      simple mathematical models which suggest that PCR is resistant to in
      vitro evolution because the reaction controls
      replication in discrete cycles: fast replication is of little advantage
      during PCR because the reaction limits fast replicators as well as slow
      ones to a single copy per cycle. In contrast, continuous (isothermal)
      reactions, as in the Q-beta **replicase** reaction, favor fast
      replicators. The advantage of fast replication is compounded in
      continuous reactions, because a fast replicator can complete many
      generations of replication during the time it takes a slow replicator to
      complete one generation. These models suggest that continuous amplication
      protocols will never achieve the robustness against in **vitro**
      evolution observed with PCR.

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(FILE 'HOME' ENTERED AT 10:40:19 ON 29 OCT 2003)

      FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE' ENTERED AT 10:40:31 ON 29 OCT 2003
L1       5619 S "IN VITRO SELECTION" OR AFFINITY SELECTION OR "IN VITRO EVOLU
L2         13 S L1 AND REPLICASE
L3          8 DUP REM L2 (5 DUPLICATES REMOVED)
            E COIA G?/AU
L4          0 S E7 E6 E1 E2
L5         84 S E7 OR E6 OR E1 OR E2
L6         17 S L5 AND (EVOLUTION OR SELECTION)
L7          8 DUP REM L6 (9 DUPLICATES REMOVED)
L8          6 S L7 NOT L3
```

L Number	Hits	Search Text	DB	Time stamp
1	9	coia-g$.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 10:47
2	1	2000-039104.NRAN.	DERWENT	2003/10/29 10:50
3	1	"5602001"	DERWENT	2003/10/29 10:52
4	0	"5602001" and affinity	DERWENT	2003/10/29 10:53
5	0	"5602001" and select$	DERWENT	2003/10/29 10:53
6	0	"5602001" and bind$	DERWENT	2003/10/29 10:53

L Number	Hits	Search Text	DB	Time stamp
1	4722	affinity near10 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
2	10118	bind$ near10 specific near10 ligand$	USPAT; US-PGPUB; DERWENT	2003/10/29 10:33
3	3728	replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
4	0	(affinity near10 selection) same (bind$ near10 specific near10 ligand$) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
5	176	(affinity near10 selection) same (bind$ near10 specific near10 ligand$)	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
6	2	(affinity near10 selection) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:32
8	1	(bind$ near10 specific near10 ligand$) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:32
9	2905	vitro near10 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 10:33
10	4	(vitro near10 selection) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:34
11	2	taussing-$.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35
12	13885	(affinity near10 selection) or (bind$ near10 specific near10 ligand$)	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35
13	3026	((affinity near10 selection) or (bind$ near10 specific near10 ligand$)) and "RNA polymerase"	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35
14	13	((affinity near10 selection) or (bind$ near10 specific near10 ligand$)) near10 "RNA polymerase"	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35